The Wayback Machine - https://web.archive.org/web/20140212131657/http://www.abs.gov.au/websitedbs/CaSHome.nsf/Home/CaSQ+4B+SCATTERPLOTS:+LINE+OF+BEST+…

CaSQ 4B - Scatterplots: Line of Best Fit for Height vs. Arm Span

You can download this activity as a rich text file (RTF) using the link at the bottom of the page.

How to: Get a Random Sample from CensusAtSchool

Go to the CensusAtSchool Random Sampler and get a sample.

Reference year: *(select year)* **Sample size:** A*t least 20 students*

Select questions: *Height, Arm Span*

Location: Select location **Year level:** *Select a range of year levels*

To protect privacy there is a rule built into the sampler that the requested sample size cannot exceed 10% of the respondents for the parameters entered.

Please note: This task is designed to be completed by hand. It can also be completed using a computer or CAS calculator.

Task:

1. In your CensusAtSchool random sample, find the question about height, and the question about arm span, and enter both sets of twenty numbers as:

- two columns in Excel, or
- two separate lists in your CAS calculator, or
- as a table in your workbook

2. Create a scatter plot, with height as the independent variable (x) and arm span as the dependent variable (y).

3. Create a line of best fit. Position your ruler on the graph to follow the general trend of the data, then move the ruler and rule a line so that approximately ten (half) data points are above the line, and approximately ten (half) data points are below the line.

4. Explain what might affect the accuracy of your line of best fit.

5. From your line of best fit, write down two ordered pairs. (,) (,)

6. Use the two sets of ordered pairs from question 5 to find out the linear equation of the line of best fit, in the form of y=mx+c.

7. Check the linear equation for your line of best fit is correct, by substituting another ordered pair from your line of best fit into your equation.

Extension:

8. Can arm span be used to predict height? Draw conclusions from your graph, and write a summary paragraph. Some key words to use are: random sample, line of best fit, linear, correlation.

Download the full activity: RTF

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